

Remarks

Claims 37-55 are presented for reconsideration, with claims 37, 54, and 55 being the independent claims. Claim 48 is sought to be amended. No new matter has been added, and entry thereof is respectfully requested.

Based on the above amendments and following remarks, Applicants respectfully request that the Examiner reconsider all outstanding rejections and that they be withdrawn.

Information Disclosure Statement

Applicants have filed an Information Disclosure Statement on April 11, 2007, and request that the Examiner consider and acknowledge consideration of same.

Rejection under 35 U.S.C. § 112, second paragraph

The Examiner rejected claim 48 under 35 U.S.C. §112, second paragraph, for failing to particularly point and distinctly claim the subject matter with Applicants regard as the invention. Applicants have amended claim 48 to clarify the subject matter being claimed. Accordingly, Applicants request that the rejection be reconsidered and withdrawn.

Rejections under 35 U.S.C. § 102 and § 103

Claims 37, 47, 49, 54, and 55 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,249,370 to Takeuchi *et al.* ("Takeuchi"). Claims 38-41, 43-46, 50, and 51 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Takeuchi in view of U.S. Patent No. 6,549,694 to Makino *et al.* ("Makino"). Claim 42 was rejected 35 U.S.C. §103(a) as allegedly being unpatentable over Takeuchi in view of U.S. Patent No. 6,639,722 to Amm *et al.* ("Amm"). Claim 52 was rejected 35 U.S.C. §103(a) as allegedly being unpatentable over Takeuchi in view of U.S. Patent No. 6,002,154 to Fujita *et al.* ("Fujita") Applicants traverse these rejections.

Independent claims 37, 54, and 55 include features which distinguish over the applied references. For example, claims 37, 54, and 55 recite at least a plurality of

individual actuators formed on the surface of a continuous solid and substantially rigid substrate and separated laterally from one another thereby forming a two dimensional array, each of the individual actuators having a mirror and a pair of electrodes formed at opposite ends of the individual actuators, wherein when the electrode pair is energized the individual actuator moves the mirror with respect to the surface of the substrate, such that the incident wavefront is modulated to produce an output wavefront.

As discussed previously in the Preliminary Amendment filed March 28, 2006, which entire argument is incorporated by reference, and which arguments the Examiner has not explicitly addressed, Takeuchi does not receive an incident light beam at all, as recited by claims 37, 54, and 55, but instead uses a waveguide that transmits light until a reflecting element is moved into a light path in the waveguide. Takeuchi is directed to a display device that displays a picture image, which is being used to replace a cathode ray tube or liquid crystal display for color displays. The display device of Takeuchi includes a waveguide and an array of LEDs/shutter sections, which are actuated into and out of the light path in the waveguide. The actuation is done to either reflect or block light traveling along the light path in the waveguide, which controls either outputting or preventing output of the light. The actuation in Takeuchi is performed through having a flexible substrate (e.g., a vibrating substrate) attached to one end of the LEDs or shutters, which allows them to flex (e.g., cantilever, rotate, etc.) into or out of the light path. (See, e.g., Remarks in Reply under 37 C.F.R. 1.116 filed April 11, 2005 and Remarks in Amendment and Reply under 37 C.F.R. 1.111 filed November 17, 2004). The flexible substrate is required in every embodiment of Takeuchi for it to function. (Id.)

Specifically, the Examiner appears to allege that actuator substrate 22 is a continuous solid and substantially rigid substrate, as recited in claims 37, 54, and 55. Office Action, pg. 3. However, actuator substrate 22 includes thin walled and thick walled portions. The thin walled portion of actuator substrate 22 "tends to undergo vibration in response to external stress, and it functions as a vibrating section." Takeuchi, col. 7, lines 46-49. Thus, actuator substrate 22 is a vibrating substrate and not a continuous solid and substantially rigid substrate, as recited in claims 37, 54, and 55. Furthermore, actuator elements 14 include "the vibrating section 26 and the fixed section

28." Takeuchi, col. 8, lines 9-10. Hence, actuator elements 14 move along with substrate 22 and cannot move a mirror with respect to the surface of substrate 22.

Therefore, as discussed above, Takeuchi does not teach or suggest these features of claims 37, 54, and 55 at least because (a) the substrate in Takeuchi is not continuous and substantially rigid and (b) the substrate in Takeuchi moves with the mirror during actuation of the mirror, i.e., the mirror does not move with respect to the surface of the substrate. Makino, Amm, and Fujita do not cure these deficiencies in Takeuchi.

Thus, even assuming the combination of Takeuchi, Markino, Amm, and Fujita is proper, which Applicants dispute, the combined references do not teach or suggest at least a plurality of individual actuators formed on a continuous solid and substantially rigid surface of the substrate and separated laterally from one another thereby forming a two dimensional array, each of the individual actuators having a mirror and a pair of electrodes formed at opposite ends of the individual actuators, wherein when the electrode pair is energized the individual actuator moves the mirror with respect to the surface of the substrate, such that the incident wavefront is modulated to produce an output wavefront, as recited in claims 37, 54, and 55.

Accordingly, Applicants respectfully request that the Examiner find claims 37, 54, and 55 allowable over the cited references. Also, at least based on their dependency to claim 37, Applicants request that the Examiner find claims 38-53 allowable.

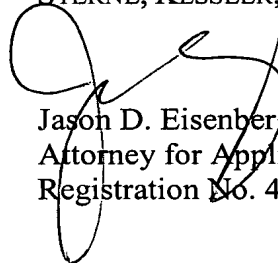
Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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